



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/734,008

12/10/2003

Richard D. Bunch

HSJ9-2003-218-US1

9413

23980

7590

01/16/2009

MINTZ, LEVIN, COHN, FERRIS, GLOVSKY AND POPEO, P.C
5 Palo Alto Square - 6th Floor
3000 El Camino Real
PALO ALTO, CA 94306-2155

EXAMINER

GOFF II, JOHN L

ART UNIT

PAPER NUMBER

1791

MAIL DATE

DELIVERY MODE

01/16/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/734,008	Applicant(s) BUNCH ET AL.	
	Examiner John L. Goff	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 8-15, 17-20, 24-28 and 30-36 is/are pending in the application.
- 4a) Of the above claim(s) 27, 28 and 30-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-15, 17-20, 24-26, 35 and 36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/24/08 has been entered.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

3. Claims 19, 24-26, 35, and 36 are rejected under 35 U.S.C. 102(b) as anticipated by Uetani et al. (U.S. Patent Application Publication 2001/0026905).

Uetani discloses a method of producing a resist composition including providing a novolac resin and adding a solvent thereto. Uetani teaches the solvent consists of acetone which is a solvent having a boiling point in the range of about 30 °C to about 70 °C (Paragraphs 10 and 22).

The resist taught by Uetani is considered "said adhesive composition with improved adhesive characteristics". The resist taught by Uetani forms a resist film on a substrate following coating and drying such that because the resist film adheres to the substrate the resist is considered an adhesive (Paragraph 22). Additionally, as specifically noted by applicants

Art Unit: 1791

specification in Table 1 a tradition resist is an adhesive composition. It is noted there is no specific requirement in the claims for any specific improved adhesive characteristics other than the characteristics are obtained by the addition of solvent wherein because the resist taught by Uetani is considered an adhesive which includes a solvent added thereto as required by the claims it is thus “said adhesive composition with improved adhesive characteristics”.

Regarding the limitation “of producing an adhesive composition having improved adhesive characteristics for use in bonding a ceramic material to a manufacturing tool” as stated in the preamble, it is noted this limitation is merely the intended use of the produced composition and is given little weight to further limit the scope of the claims as no further structural limitations are required, it being noted the resist composition produced by Uetani is capable of being used in this manner (See MPEP 2111.02).

Regarding the limitation of “wherein said composition consists essentially of the novolac resin and the solvent”, the transitional phrase “consists essentially of” has been interpreted in the same manner as “consisting essentially of”. For the purposes of searching for and applying prior art under 35 U.S.C. 102 and 103, absent a clear indication in the specification or claims of what the basic and novel characteristics actually are, “consisting essentially of” will be construed as equivalent to “comprising.”. If an applicant contends that additional steps or materials in the prior art are excluded by the recitation of “consisting essentially of,” applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant’s invention (See MPEP 2111.03). It appears the basic and novel characteristics of applicants invention are to an adhesive composition including novolac resin and a solvent having a boiling point in the range of about 30 °C to about 70 °C such that the

Art Unit: 1791

adhesive composition taught by Uetani is considered an adhesive composition consisting essentially of novolac resin and acetone. The composition taught by Uetani does include a radiation-sensitive quinonediazide compound and a thioxanthone compound. However, applicant has not shown that these two compounds would materially change the characteristics of applicants invention. The traditional resist example of applicants specification does show that a composition including a novolac resin, solvents having a boiling point outside of the range of about 30 °C to about 70 °C, and a photosensitizer is materially different than Example 1 a composition having the basic and novel characteristics of applicants invention as set forth above. However, the traditional resist example differs from Uetani in that a solvent having a boiling point outside of the range of about 30 °C to about 70 °C is used and there is no showing that the photosensitizer of the example is the same or similar to either of the radiation-sensitive quinonediazide compound or the thioxanthone compound taught by Uetani.

Regarding claims 35 and 36, the Office is unable to test if the adhesive composition taught by Uetani results in an increase in yield of about 75% or more over a resist composition that includes a novolac resin and a photosensitizer. However, one of ordinary skill in the art at the time the invention was made would readily expect the adhesive composition taught by Uetani which is consistent and in agreement with that claimed and described by applicants specification as an improved adhesive composition to result in an increase in yield of about 75% or more over a resist composition that includes a novolac resin and a photosensitizer absent a specific showing by applicants otherwise.

Art Unit: 1791

4. Claims 19, 24-26, 35, and 36 are rejected under 35 U.S.C. 102(b) as anticipated by Teiichi et al. (WO 01/60938 with U.S. Patent Application Publication 2003/0069331 used as a translation).

Teiichi discloses a method of producing an adhesive composition including providing an epoxy novolac adhesive resin and adding a solvent thereto. Teiichi teaches the solvent consists of acetone which is a solvent having a boiling point between 30 °C and 70 °C (Paragraphs 1, 33, and 137).

The adhesive taught by Teiichi et al. is considered “said adhesive composition with improved adhesive characteristics”. It is noted there is no specific requirement in the claims for any specific improved adhesive characteristics other than the characteristics are obtained by the addition of solvent wherein because the adhesive taught by Teiichi et al. includes a solvent added thereto as required by the claims it is thus “said adhesive composition with improved adhesive characteristics”.

Regarding the limitation “of producing an adhesive composition having improved adhesive characteristics for use in bonding a ceramic material to a manufacturing tool” as stated in the preamble, it is noted this limitation is merely the intended use of the produced composition and is given little weight to further limit the scope of the claims as no further structural limitations are required, it being noted the resist composition produced by Teiichi is capable of being used in this manner (See MPEP 2111.02).

Regarding the limitation of “wherein said composition consists essentially of the novolac resin and the solvent”, the transitional phrase “consists essentially of” has been interpreted in the same manner as “consisting essentially of”. For the purposes of searching for and applying prior

Art Unit: 1791

art under 35 U.S.C. 102 and 103, absent a clear indication in the specification or claims of what the basic and novel characteristics actually are, “consisting essentially of” will be construed as equivalent to “comprising.”. If an applicant contends that additional steps or materials in the prior art are excluded by the recitation of “consisting essentially of,” applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant’s invention (See MPEP 2111.03). It appears the basic and novel characteristics of applicants invention are to an adhesive composition including novolac resin and a solvent having a boiling point in the range of about 30 °C to about 70 °C such that the adhesive composition taught by Teiichi is considered an adhesive composition consisting essentially of novolac resin and acetone. The composition taught by Teiichi does include a curing agent, filler, and a polymer incompatible with the epoxy novolac. However, applicant has not shown that these components would materially change the characteristics of applicants invention.

Regarding claims 35 and 36, the Office is unable to test if the adhesive composition taught by Teiichi results in an increase in yield of about 75% or more over a resist composition that includes a novolac resin and a photosensitizer. However, one of ordinary skill in the art at the time the invention was made would readily expect the adhesive composition taught by Teiichi which is consistent and in agreement with that claimed and described by applicants specification as an improved adhesive composition to result in an increase in yield of about 75% or more over a resist composition that includes a novolac resin and a photosensitizer absent a specific showing by applicants otherwise.

Art Unit: 1791

5. Claims 19, 24-26, 35, and 36 are rejected under 35 U.S.C. 102(b) as anticipated by LeBlanc (U.S. Patent 3,582,516).

LeBlanc discloses a method of producing an adhesive composition consisting of providing an epoxy novolac adhesive resin and adding a solvent thereto. LeBlanc teaches the solvent consists of acetone which is a solvent having a boiling point between 30 °C and 70 °C (Column 14, lines 52-60).

The adhesive taught by LeBlanc is considered “said adhesive composition with improved adhesive characteristics”. It is noted there is no specific requirement in the claims for any specific improved adhesive characteristics other than the characteristics are obtained by the addition of solvent wherein because the adhesive taught by LeBlanc includes a solvent added thereto as required by the claims it is thus “said adhesive composition with improved adhesive characteristics”.

Regarding the limitation “of producing an adhesive composition having improved adhesive characteristics for use in bonding a ceramic material to a manufacturing tool” as stated in the preamble, it is noted this limitation is merely the intended use of the produced composition and is given little weight to further limit the scope of the claims as no further structural limitations are required, it being noted the resist composition produced by LeBlanc is capable of being used in this manner (See MPEP 2111.02).

Regarding claims 35 and 36, the Office is unable to test if the adhesive composition taught by LeBlanc results in an increase in yield of about 75% or more over a resist composition that includes a novolac resin and a photosensitizer. However, one of ordinary skill in the art at the time the invention was made would readily expect the adhesive composition taught by

Art Unit: 1791

LeBlanc which is consistent and in agreement with that claimed and described by applicants specification as an improved adhesive composition to result in an increase in yield of about 75% or more over a resist composition that includes a novolac resin and a photosensitizer absent a specific showing by applicants otherwise.

Claim Rejections - 35 USC § 103

6. Claims 15-19, 24-26, 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruiz (U.S. Patent 5,406,694) in view of LeBlanc or Teiichi.

Ruiz discloses a method of forming a slider for a hard disk drive including providing a ceramic chunk (40 of Figure 6) from a wafer and bonding the air bearing side of the ceramic chunk to a ceramic manufacturing tool (50 of Figure 6) through a layer of thermoset adhesive (Figure 6 and Column 1, lines 6-8 and Column 5, lines 35-38 and Column 7, lines 38-49). Ruiz does not specifically describe using an adhesive including a solvent, it being noted Ruiz are not limited to any particular thermoset adhesive.

LeBlanc discloses a method of producing a thermoset adhesive composition having good physical strength properties and easily manufactured from readily available and inexpensive starting materials for bonding any number of materials such as inorganic materials consisting of an epoxy novolac resin and a solvent added thereto such as acetone which is a solvent having a boiling point between 30 °C and 70 °C where the composition does not include, i.e. excludes, solvents having a boiling point above about 70 °C (Column 1, lines 30-35 and 61-65 and Column 2, lines 12-26 and Column 14, lines 52-60). It would have been obvious to one of ordinary skill in the art at the time the invention was made to adhere the ceramic chunk to the ceramic

Art Unit: 1791

manufacturing tool as taught by Ruiz using the thermoset adhesive including solvent used for adhering inorganic materials taught by LeBlanc having good physical strength properties and easily manufactured from readily available and inexpensive starting materials.

Teiichi discloses a method of producing a thermoset adhesive composition having excellent heat and moisture resistance with no volatilization for bonding a ceramic substrate, e.g. a ceramic material, to another ceramic substrate, e.g. semiconductor chip, including an epoxy novolac resin and a solvent added thereto such as acetone considered a solvent having a boiling point between 30 °C and 70 °C where the composition does not include, i.e. excludes, solvents having a boiling point above about 70 °C (Paragraphs 1, 31, 33, 131, 137, 145, 152, and 155). It would have been obvious to one of ordinary skill in the art at the time the invention was made to adhere the ceramic chunk to the ceramic manufacturing tool as taught by Ruiz using the thermoset adhesive including solvent used for adhering ceramic substrates together taught by Teiichi et al. which has excellent heat and moisture resistance with no volatilization. Regarding the limitation of “wherein said composition consists essentially of the novolac resin and the solvent”, the transitional phrase “consists essentially of” has been interpreted in the same manner as “consisting essentially of”. For the purposes of searching for and applying prior art under 35 U.S.C. 102 and 103, absent a clear indication in the specification or claims of what the basic and novel characteristics actually are, “consisting essentially of” will be construed as equivalent to “comprising.”. If an applicant contends that additional steps or materials in the prior art are excluded by the recitation of “consisting essentially of,” applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant’s invention (See MPEP 2111.03). It appears the basic and novel characteristics of

Art Unit: 1791

applicants invention are to an adhesive composition including novolac resin and a solvent having a boiling point in the range of about 30 °C to about 70 °C such that the adhesive composition taught by Teiichi is considered an adhesive composition consisting essentially of novolac resin and acetone. The composition taught by Teiichi does include a curing agent, filler, and a polymer incompatible with the epoxy novolac. However, applicant has not shown that these components would materially change the characteristics of applicants invention.

Regarding the limitations of “the solvent has a boiling point in the range of about 30 °C and about 70 °C” and “wherein the composition excludes solvents having boiling points above about 70 °C”, LeBlanc and Teiichi teach including a solvent chosen from a list including a number of solvents meeting the limitations including acetone, it being noted LeBlanc and Teiichi use a single solvent from the list. Absent any unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use any of the particular solvents taught by Ruiz as modified by LeBlanc or Teiichi in the adhesive composition as the (only) solvent including a solvent having a boiling point in the range of about 30 °C to about 70 °C such as acetone as was specifically suggested by LeBlanc or Teiichi.

Regarding the limitation of a “de-bondable adhesive composition”, applicants specification states, “Similarly, the term “debondable” as in “debondable adhesive” refers to an adhesive that is capable of being completely removed from the surfaces of substrates bonded thereby without damage to the substrates.”. Applicants specification further demonstrates a number of adhesives all of which are debondable such as cyanoacrylate, i.e. super glue, and a traditional resist including novolac resin. As applicants specification demonstrates that adhesive compositions whose principal component is a novolac resin is debondable the adhesive taught by

Art Unit: 1791

LeBlanc or Teiichi having the same principal component is considered debondable.

Furthermore, it is noted the claims do not require a step of debonding the adhesive, the Office is unequipped to test the adhesive for such a property, and any number of adhesives may be considered debondable including adhesives such as super glue an adhesive readily recognized to one of ordinary skill in the art as permanent and not a temporary adhesive such that absent a clear and sufficient showing the adhesive taught by LeBlanc or Teiichi is considered debondable.

Regarding claims 35 and 36, the Office is unable to test if the adhesive composition taught by LeBlanc or Teiichi results in an increase in yield of about 75% or more over a resist composition that includes a novolac resin and a photosensitizer. However, one of ordinary skill in the art at the time the invention was made would readily expect the adhesive composition taught by Ruiz as modified by LeBlanc or Teiichi which is consistent and in agreement with that claimed and described by applicants specification as an improved adhesive composition to result in an increase in yield of about 75% or more over a resist composition that includes a novolac resin and a photosensitizer absent a specific showing by applicants otherwise.

7. Claims 1, 5, 8-10, and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruiz and LeBlanc or Teiichi as applied to claims 15-19, 24-26, 35 and 36 above, and further in view of Tanaka et al. (U.S. Patent 4,376,194).

Ruiz and LeBlanc or Teiichi as applied above teach all of the limitations in claims except for a specific teaching of applying the adhesive composition to bond the ceramic chunk to the ceramic manufacturing tool by applying the adhesive composition to the ceramic chunk, contacting the ceramic manufacturing tool with the adhesive composition on the surface of the ceramic chunk to bond the tool and chunk, and subjecting the adhesive composition located

Art Unit: 1791

between the ceramic chunk and ceramic tool to conditions effective to remove the solvent from the adhesive. Ruiz is not limited to any particular method of applying the adhesive composition. LeBlanc simply teaches the adhesive composition is cured at 180 °F considered conditions effective to substantially remove the acetone. Teiichi suggests applying the adhesive composition to bond two substrates by first forming the adhesive composition into a dried adhesive film, placing the adhesive film, between the two substrates, and contacting the substrates and adhesive film to bond the two substrates, but Teiichi is not limited to this method (Paragraph 148). It is considered well taken in the art of applying an adhesive composition including a solvent to bond two substrates to apply the adhesive composition to a first substrate, contacting a second substrate with the adhesive composition on the surface of the first substrate to bond the first and second substrates, and subjecting the adhesive composition located between the substrates to conditions effective to remove the solvent from the adhesive as shown for example by Tanaka (Column 8, lines 46-52) wherein Tanaka also note this technique as an alternative forming the adhesive into a film and then bonding the two substrates (Column 8, lines 20-22). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the adhesive composition as taught by Ruiz as modified by LeBlanc or Teiichi by applying the adhesive composition to the ceramic chunk, contacting the ceramic manufacturing tool with the adhesive composition on the surface of the ceramic chunk to bond the tool and chunk, and subjecting the adhesive composition located between the ceramic chunk and ceramic manufacturing tool to conditions effective to remove the solvent from the adhesive as is well taken in the art and shown by Tanaka to avoid the extra step of forming the adhesive composition into a film.

Art Unit: 1791

8. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ruiz, LeBlanc or Teiichi, and Tanaka as applied to claims 1, 5, 8-10, and 12-14 above, and further in view of Schafer (U.S. Patent 5,421,884).

Ruiz, LeBlanc or Teiichi, and Tanaka as applied above teach all of the limitations in claim 11 except for a specific teaching of using vacuum conditions to remove the solvent from between the ceramic chunk and ceramic manufacturing tool. Schafer is exemplary of the known technique for removing solvent from an adhesive in the microelectronics industry by applying vacuum and heat conditions to the adhesive to remove substantially all air bubbles and solvent inclusions within the adhesive (Column 1, lines 29-34 and Column 3, lines 30-39). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in Ruiz as modified by LeBlanc or Teiichi and Tanaka vacuum conditions to remove the solvent from the adhesive as shown for example by Schafer to remove substantially all air bubbles and solvent inclusions within the adhesive.

9. Claims 2-4 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruiz and LeBlanc or Teiichi as applied to claims 15-19, 24-26, 35 and 36 above or Ruiz, LeBlanc or Teiichi, and Tanaka as applied to claims 1, 5, 8-10, and 12-14 above, and further in view of Brown (U.S. Patent 6,265,015).

Ruiz, LeBlanc or Teiichi, and Tanaka as applied above teach all of the limitations in claims 2-4 and 20 except for a specific teaching of the amount of novolac resin present. It is well taken in the art that the amount of solvent, e.g. acetone, in a novolac resin composition is determined as a function of the desired viscosity of the composition as evidenced by Brown including amounts of novolac resin present in the claimed broad range (Column 10, line 62 to

Art Unit: 1791

Column 11, line 30). It would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine the amount of solvent present in Ruiz as modified by LeBlanc or Teiichi (or Ruiz as modified by LeBlanc or Teiichi and Tanaka) as a function of the desired viscosity of the composition as was well taken in the art as evidenced by Brown including amounts of novolac resin present in the claimed broad range.

Response to Arguments

10. Applicant's arguments with respect to claims 1-5, 8-15, 17-20, 24-26, 35, and 36 have been considered but are moot in view of the new ground(s) of rejection.

In view of applicants amendment the previous rejections over Asami et al. (JP 60221476) are withdrawn. The new limitations are addressed above in full detail.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **(571)272-1216**. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1791

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John L. Goff/
Primary Examiner, Art Unit 1791